

What is My Acceleration?

Purpose: The purpose of this activity is to learn how to measure acceleration and “deceleration” or negative acceleration. You will calculate your acceleration over a 20 m run and then graph your results.

Procedure: Each of you will measure your own acceleration over a 20 m run. You will run 20 m from the start line and accelerate to as fast as you can go. At the 20m line, you will stop. At 5 meter intervals your time will be recorded by the timers. On the data table, record your times under the distance you traveled. From this data you will be able to calculate your velocity at each point.

Data Table 1:

Subject: _____

Distance (m)	0 meters	5 meters	10 meters	15 meters	20 meters
Time (s)					
Velocity (m/s)					

Data Table 2:

Subject: _____

Distance (m)	0 meters	5 meters	10 meters	15 meters	20 meters
Time (s)					
Velocity (m/s)					

Data Table 3:**Subject:** _____

Distance (m)	0 meters	5 meters	10 meters	15 meters	20 meters
Time (s)					
Velocity (m/s)					

Calculations: Show your work for the following.

1. Calculate the three accelerations from the 0m to the 10m point. Are any of the subjects accelerating or decelerating over this distance? (Initial Velocity = Velocity at 0 meters. Final Velocity = Velocity at 10 meters. Use time at 10 meters).
2. Calculate the three accelerations from the 10m to 20m point. Are any of the subjects accelerating or decelerating over this distance? (Initial Velocity = Velocity at 10 meters. Final Velocity = Velocity at 20 meters. Use time from 10 meters to 20 meters. Hint, you need to subtract to find the time the subject ran from 10m to 20 m).

Graph: Set up a graph. Place distance on the Y axis and Time on the X axis. Be sure to follow all rules of graphing. Place all three pieces of data on the same graph, using a different color to represent each subject.

Analyze and Conclude:

1. Did you see an upward curve on your graph? If so, what does that tell you about the acceleration?
2. On your graph, did you see the line flatten out to horizontal? What does that tell you about the acceleration?
3. What were some errors that could have made the data inaccurate?